



Serial Number 09/670,028

RECEIVED
FEB 11 2003
TC 1700 MAIL ROOM

APPENDIX A
(Clean Copy Of Amended Claims)

1. (Amended) A method for processing a material by locally raising a temperature of the material by transferring energy to the material in order to facilitate chemical reactions or processes related to processing of the material, comprising the steps of:

providing a cryogenic medium;

causing an electrode to emit or attract electrons by applying voltage pulses to the electrode to cause propagation of a succession of thermal spikes or shockwaves in the cryogenic medium; and

varying an energy of the thermal spikes or shockwaves by varying the energy of said electrons emitted by or attracted to the electrode,

wherein a dimension of said thermal spikes or shockwave is on the order of less than one nanometer to several tens of micrometers, and

a total area of the material affected by energy carried by the thermal spikes or shockwaves, is on the order of less than one nanometer squared to several tens of square micrometers.

4. (Amended) A method as claimed in claim 2, wherein said thermal spikes or shockwaves are generated by transmitting electrons in a direction generally parallel to a surface of the material, said electrons being transmitted in said generally parallel direction from said electron emitter tip towards an anode.

6. (Amended) A method as claimed in claim 1, wherein the medium is in a gas, liquid, or supercritical state.

8. (Amended) A method as claimed in claim 1, wherein said voltage pulses are variable voltage pulses of on the order of a few picoseconds to hundreds of nanoseconds.

B⁵

10. (Amended) A method as claimed in claim 9, wherein said processing includes deposition of materials, followed by cleaning of a resulting product.

13. (Amended) A method as claimed in claim 12, wherein gases used in said etching are selected from the group consisting of hydrogen, chlorine, and fluorine.

B⁶

14. (Amended) A method as claimed in claim 1, wherein said processing includes growth of said material in a growth subcell, and etching and cleaning of the material in respective cleaning and etching subcells, said growth, cleaning, and etching subcells all being in communication and situated in a single growth cell.

15. (Amended) A method as claimed in claim 1, wherein said processing includes growth of said material in a growth sub-area, and etching and cleaning of the material in respective cleaning and etching sub-areas, said growth, cleaning, and etching sub-areas all being in communication and situated in a single growth cell.
